rations

QUARTERMASTER FROM KOREA

Research and development work always profits by a first-hand report on the field problems, since in the final analysis research for the Military is only valid if based on the experience of the Military. In many other types of research and development, research projects grow naturally out of theoretical considerations involving no contact with the grim circumstances of war. Major Bouse has performed a signal service by describing vividly and with great clarity the feeding system used on the division level in Korea. From this description, it is not difficult to understand the amount of research and development work required to make rations adaptable to the rigors of terrain, climate, and the high mobility of modern warfare.

By Therman Bouse

My tour of duty as Division Quartermaster in Korea began during the winter of 1951 and lasted through the fall of 1952. During this time, the Division first operated on the line, was called back into a reserve position, and then once again went into combat on the line. Consequently, we had experience with all the situations—combat and non-combat—that one would normally expect to encounter in Korea. Perhaps, at the outset, an outline of the arrangement of troops on the line will help to visualize just how food is distributed from supply points down to the consuming elements of a division.

This was a normal infantry division consisting of the full complement of men and officers. However, in Korea we normally support several attached units; consequently, division strength always exceeds the regular assigned number. In addition to feeding U. S. Army personnel in the organizational elements of the Division, we were called upon to supply attached or even merely adjacent United Nations troops. This, of course, constitutes a greater than normal requirement for supplies and supply personnel and calls for additional transportation facilities and handling personnel.

feeding problems occasioned by troop deployment

A division on the line is usually deployed in four major operating echelons. Farthest forward in the combat zone we have the outpost or the Operational Line of Resistance. The purpose of the troops on this OPLR is to prevent a surprise attack on the principal forces situated on the Main Line of Resistance or to divert and/or break up an enemy attack. You can readily see that these elements must constantly be on the alert. Since they are in direct and immediate contact with the enemy, we are confronted with the considerable problem of getting hot food to these individuals. It has been

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common practice in Korea to serve hot meals whenever and wherever possible, and in this case we have endeavored to furnish at least one hot kitchen-prepared meal daily. This, necessarily, must be carried in under cover or during the hours of darkness. The other two meals consist of operational rations, C-type. The method of distributing the food presents a problem from the standpoint of (1) security, since movement must not be detected, (2) labor, because in all cases the food must be carried forward by individuals,[1] and (3) palatability, because of the difficulty in keeping the items hot between kitchen and consumer.[2]

The bulk of the Division we find on the Main Line of Resistance where the practice has been to serve at least two hot meals daily. Here again we are confronted with the problem of preparing the food, transporting it, and seeing that it arrives in a hot, palatable condition. Preparation of the food is done at unit level by the American troops; that is, the company kitchen prepares the hot meal on the field range and the distribution is made direct from the kitchen to the individual user on the Main Line of Resistance or the Operational Line of Resistance. Notice, in the case of the MLR, that two hot meals per day are served; a maximum of one hot meal per day is the limit for the people operating on the outpost, i.e., the OPLR. The operational C-ration is used to provide the other meals. Methods employed in heating the operational ration vary with the facilities available, but every effort is made to serve the meal in as palatable and acceptable a condition as possible.

Over and above the normal three meals per day for individuals on the OPLR, particularly where 24-hour alert must be maintained, there is need for additional food, and it has been found necessary to serve a supplemental meal at some time during the late evening hours. The Individual Assault Packet has been used in many instances to supply this additional meal. In other instances, personnel operating the company kitchen serve hot coffee, soup, and sandwiches from leftover foods of the A-ration issue or, utilizing crackers, peanut butter, jams, and jellies, provide sandwiches or snacks. Sufficient quantities of fresh oranges and other fruits are also available to provide a distribution of fresh fruit for the additional meal.

There is one other notable instance in which the ordinarily adequate rations must be supplemented and that is during the severe winters. This is particularly true where troops are not in a position to occupy heated shelters. For winter operations, provision has been made to issue what we call a "supplemental caloric component" to the ration; that is, the companies are authorized to draw over and above the ration certain extra components, including an additional quantity of fresh bread, jams, jellies, precooked cereals, and cooking oil.

Behind the troops operating on the MLR are various division echelons extending as far back as 30 miles. Obviously, hot meals are served wherever possible, and it is possible under present tactical situations in Korea to serve three hot meals daily to these service elements such as the engineer, ordnance, or signal troops which have headquarters behind the MLR. Under these conditions the normal, field-type kitchen has been established and this kitchen serves the normal unit-sized organization under standard operating procedures.

The very rear echelons of an infantry division (division rear) extending several miles behind front lines operate a "consolidated mess." This is considered proper and necessary since replacement and numerous supernumerary personnel are continuously being processed through this installation. These consolidated messes are able to feed from 500 to 1000 men cafeteria style. It is at this installation that we have been able to establish a fairly permanent arrangement and it is possible to use dishwashing equipment and other conveniences.

The difficulties, then, of meeting division feeding requirements progress in stature from the rear areas. Troops up to the MLR are served from the field kitchens and are able to consume three hot meals daily. Troops operating on the MLR are able in most instances to receive at least two hot meals a day and the operational rations for the other meal. The outpost personnel never receive more than one hot meal per day, and in many instances the operational ration is required for all three meals.

receiving and distributing the rations

Concerning the distribution of rations in Korea, the procedure is quite efficient. The rations arrive

ROK troop feeding—a typical feeding method at company level.

[1] Two methods have been employed by the Korean service troops who serve as carriers: (1) the American standard packboard, and (2) the A-frame, which is a traditional mode of transportation in Korea. The A-frame is attached to the back of the individual and of course the insulated container is placed thereon. The terrain is extremely difficult to negotiate in many instances. During the winter months the individual must scale lofty precipices or negotiate steep terrain which is frozen, ice-covered, and extremely slippery and hazardous. The terrain, of course, affords the advantage in that the kitchen may be located in some instances fairly close to the Main Line of Resistance, thus shortening the carrying distance.

[2] In all cases the prepared food is distributed by using the insulated food containers which are standard equipment in the Army. The insulated containers are strapped to the human carrier's back. The standard insulated containers, both the M-1944 and the older model, the round container, are being used in Korea at the present time. The latest container, the M-1944, is light and does not stand up well under the rough handling it receives in Korea. However, it is the more desirable of the two since it is lighter and has greater insulating qualities. The over-all dimensions are smaller and it is easier to transport and handle under conditions on the line.

Jeep transportation is used as far forward as possible; after that it's up to the "A-frame" pack carriers.

at the Army distribution point where perishable items continue on in refrigerator cars or trucks and reach the division QM distribution point in good condition. This supply point is usually located as close to the MLR as is tactically sound. The perishable items are then transferred by division QM to the organizational supply officers within the division along with the dry stores which arrive on the same train. In order to assure maximum "reefer" protection to the perishables, the procedure of division QM distribution is to issue first the dry stores which have been off-loaded and placed in stockpiles alongside the railroad cars. The organizational supply personnel then drive the 2½-ton truck along the stockpiled supplies and the issues are made at that time. At the end of the issuing set-up on the railhead they receive the perishables issued directly from the car. The organizational supply officer will then transport the rations, on the average, a maximum of 15 miles from the division QM distribution point at which point the rations are off-loaded and again broken down and issued to smaller or consuming units. These unit personnel take the supplies to the unit kitchen for preparation—and, in the case of the operational rations, for further distribution as directed by commanding officers.

The railroad facilities in Korea are now very dependable and the ration trains bring perishables to division points of distribution in good condition. I do want to point out, however, that it is not possible for each division QM supply point in Korea to receive Class I supplies [3] at a railroad distributing point. We were one of the fortunate few. In those instances where the division QM supply point is not accessible to the distributing facilities, the division QM personnel must negotiate the pick-up of supplies at the Army distribution point and haul them forward in trucks. This places a burden on transportation and the division QM often finds it necessary to call upon corps and Army transportation facilities to assist.

[3] The Quartermaster Corps has established six "classes" of supplies to facilitate the procurement, distribution, requisitioning, and property accounting operations. The Class I supplies mentioned above include subsistence and any other items consumed at a daily rate in a given combat zone. The other classes are as follows: Class II—clothing; Class III—fuel, oils, gasoline, lubricants, greases; Class IV—individual equipment, including weapons; Class V—heavy engineer equipment, ammunition, and field fortification. For practical purposes, Class II and Class IV supplies are regarded as one class and issued together.

storing perishables

Dry stores present little or no problem in short-time storage but, with regard to perishables, a number of facts stand out. During the winter the weather is cold enough so that these items can be handled with only a small amount of depreciation and loss. However, distribution of perishable items during the summer months presents a real problem. The most effective hot weather solution is to handle the items with great care and maintain close schedules so as to insure distribution with the least possible loss of time. For example, the division QM manufactures ice and ice cream and distributes the items simultaneously with the rations. The ice cream is manufactured in the vicinity of the division QM's plant and is stored in the field in refrigerated, walk-in type boxes. The ice is manufactured at the same installation and is placed in temporary storage until distribution. The great difficulty encountered so far as division QM operations are concerned is that we do not have available in Korea a standard insulated carrying container to contain the ice cream until it arrives at the unit-consuming level. Inventive personnel have improvised certain containers which are proving very satisfactory. Also, insulated wooden boxes have been manufactured by company carpenters for ice handling. These fit on the 2½-ton trucks and preserve the ice with relatively small loss. The use of corrugated boxes has also given longer life to ice cream. However, excessive loss is still experienced in Korea during the summer months on both ice and ice cream.

Perishable items are issued directly to the using agency from the "reefer" car by Division QM supply point personnel.

fresh supplements to the rations

The reader may have surmised by this time that the ration situation in Korea is well in hand. This is true. We have introduced numerous supplemental perishable items to the rations, the like of which the American Army has never before received in the field. The troops are extremely enthusiastic about the field rations at the present time—especially about ice cream and ice and the perishable vegetable products.

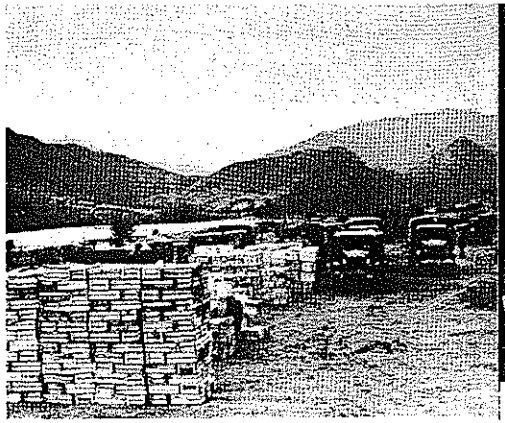
The perishable vegetable products used in Korea are an interesting story in themselves. They are an an example of how modern food technology has been combined with swift distribution methods to improve the soldier's lot. Such items as radishes, lettuce, tomatoes, cucumbers, and green onions are grown on hydroponic "farms" in Japan [4] and transported by air "reefer" ship and "reefer" car to the frontline troops. Hydroponic vegetables, of course, diversify the menu; they are well accepted and considered highly desirable by the troops in Korea.

[4] An excellent account of the techniques and methods of hydroponic farming is contained in War Department Manual TM 20-500, "Nutriculture," dated July 1946.

Fresh meat, of course, is also shipped by refrigerated transport and is normally served at an average of twice daily.

It should not be inferred from the foregoing that refrigerated facilities —especially storage facilities for perishables—are adequate at all echelons in Korea. They are, however, adequate for most part down to and including the division QM level. Tremendous amounts of rations are handled, but great precautions have been taken by the division QM to insure that perishable items arrive at the consuming unit in good condition. Facilities for storage to the rear of the division QM installation are of a semi-permanent nature and, as mentioned, generally good protection is provided. However, even here expedients must sometimes be employed to supplement available facilities. To give an illustration, fresh vegetables held over at the division QM installation waiting for pick-up by the using installation are vulnerable to freezing, and certain small quantities perish during the winter months. Even articles like liquid bottled vinegar freeze and burst.[5] To combat the problem, heated shelters have been improved by utilizing tentage, tent stoves, and miscellaneous canvas items to prevent excessive freezing and loss of such items.

After supplies leave the division QM, problems are encountered down to and including the unit-consuming level. The companies have also displayed ingenuity by improvising so-called "root cellars" which afford fair insulation. The root cellar is used to store frozen meat[6] products,



Supplies ebb and flow at the Division QM ration distribution truck-head supply point.

perishable vegetables, and fruit items, thus saving the available ice (potable in all cases) for use in cooling beverages at the principal meal during the summer months.

The food program in Korea is, in my opinion, the best ever attained for an American combat army. Of course, with the advent of these highly perishable items we are confronted with the need for improving the distribution facilities. The Food Service personnel are very well versed in inspecting the distribution system at various points along the line. They constantly advise the handling agents as to how food could be better preserved. The question might arise, however, as to the condition of ration items, particularly perishable items, arriving at dumps to the rear of division QM in Korea. The fact is that the rations are inspected at the Army installations and, should a broken carton or case be discovered, the items are re-packed. In other words, they are not forwarded to the division QM in other than good condition. For that reason I am not in a very good position to estimate how they originally arrived. We in the 45th Division received only a moderate number of broken cases and these were found generally to be among the fresh fruit and vegetable crates. Egg cartons usually

[5] With regard to this difficulty, "Powdered Vinegar Seasoning," *(Activities Report*, April 1952, Vol. 4, No. 1) provides an answer.

[6] Note, the frozen meat thaws gradually while stored in the earthen root cellar and at the same time cools the cellar several degrees.

Cooking in Korea—Greek troops prepare roast meat in a barbecue pit.

stood up well; however, a considerable number of broken eggs were often found inside the intact case.

observations on specific foods

Since the reader might be interested in learning of the field performance of the various types of food, a brief mention of some observations might be in order.

Regarding cereal and baked products, I would say that cereals, dry cereals particularly, have been well accepted in Korea. Baked products have been used extensively and received enthusiastically; however, there are certain problems "normal" to the combat area which do not trouble the civilian user. To illustrate the point, one of the artillery units complained that they were unable to bake because the artillery pieces firing over the kitchens caused the dough to fall. Canned bread was available in limited quantities for purposes of testing its acceptability. A quantity was issued to our infantry companies on the line and was served with the hot meal, as it was felt that this would be the realistic way to test its acceptance in relation to other bread. In a few instances it was served with the operational ration. Acceptability was very great—the men liked its taste and the container was convenient to handle and suitable for Korean combat conditions. The outstanding advantage of the product, of course, is that it can be stored for a long period without deterioration. No survey was conducted to determine preference for canned bread as compared with the field bakery bread baked by Army installations to the rear and forwarded by daily train along with the rations. As for canned pound cake or prepared cake mixes, the division QM did not receive such items during my tour of duty.

The fruit best-liked, in my opinion, is oranges. Fruit juices have also been enthusiastically received. The tremendous amount of juices that have been coming in is also

Ethiopian soldiers in Korea enjoy their rations.

something new. In fact, the field soldier can hardly believe he is actually receiving so many juices. However, there exists a serving problem. The individual soldier is equipped with only one canteen cup and has to decide whether or not he will take coffee, juices, or perhaps reconstituted milk. We have constantly attempted to provide some type of cup or container for the several beverages, at the request of individual soldiers, which emphasizes the fact that the juices are in great demand.

Dairy products are of course received in various forms in Korea. The canned milk (evaporated) is a standard item of issue in Army rations and is utilized in preparing chocolate drinks and, having been reconstituted, is used in connection with breakfast cereals. So far as recombined canned cream is concerned, there are no difficulties at the present time. Ice cream, in my estimation, receives more enthusiastic acceptance than any other item in the dairy line.

With regard to condiments, I would say that the improved condiment pack is both very desirable and very well received in Korea. It is felt that certain items in the pack are superfluous, while some other items could be provided in greater quantity. Preferences have been indicated regarding sauces, and perhaps a serious study should be made to determine accurately what these preferences really are. No difficulties were experienced in the distribution of condiments; the issues were made along with the rations and certain excess items accumulated then were collected and held in the division QM's excess pile. These were subsequently made available to the mess sergeants who might require more of a particular item than usually would be available.

Tea time, and these Royal New Zealand troops make the best of the situation.

In connection with the distribution and consumption of Class I supplies, it should be remembered that the Army has provided Food Service personnel to constantly supervise and assist in improving ways and means to insure better meals to the fighting man in Korea and that there is a constant study being made to ferret out the deficiencies in the present set-up and to suggest improvements whenever possible.

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